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International Commodity Control

Retrospect and Prospect

Christopher L. Gilbert

Support for international commodity agreements is waning, but the commodity problem remains. And producer cartels are the main alternative.

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Summary findings

International commodity agreements (ICAs) fit uneasily in a world in which markets are becoming globalized and increasingly competitive. Development policy — both as preached by international agencies and as practiced by typically democratically elected and nonsocialist governments in the major producing countries — emphasizes productive efficiency, product quality, and effective marketing.

This is a long way from the ideology that gave central place to supply restrictions operating through central marketing boards and quota allocations.

In today's less centralized, more competitive world, the winners and losers from commodity stabilization are more evenly distributed across producing and consuming countries. Commodity policy is no longer a matter of redistribution from consumers to producers.

This institutional change has been reinforced by the widespread belief — evidenced, for example, by the collapse of the international tin and coffee agreements — that commodity market stabilization through international agreements cannot succeed.

In earlier decades, the belief that stabilization could and would improve the position of commodity producers provided the impetus for resolving some of the problems that intervention threw up. Since the collapse of the tin market in 1985, the belief that commodity market stabilization cannot work has undermined producers' willingness to try to resolve difficulties within existing ICAs and has reinforced the suspicion of consumer governments that these agreements were in no one's interests.

In the current climate, encouraging competitive markets, state interventions are seen as requiring clear justification in terms of market failure. The existence of active futures markets in all of the industries that have commodity agreements makes justification along these lines problematic.

But the "commodity problem" has not disappeared, and producers may look for other mechanisms to raise prices from often very low levels in industries experiencing excess capacity. Developed country governments may be forced to decide whether they prefer to see markets controlled by producer cartels (where they will lack representation) or under the auspices of international commodity agreements.

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- Retrospect and Prospect

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CONTENTS

Summary 1

1. Introduction 2

2. International Commodity Agreements 4

2.1 Historical Review 4
2.2 Buffer Stock Stabilization 7
2.3 Stabilization Using Export Controls 10

3. Breakdown 13

3.1 The International Sugar Agreements 13
3.2 The International Tin Agreements 13
3.3 The International Cocoa Agreements 16
3.4 The International Coffee Agreements 18
3.5 The International Natural Rubber Agreements 23
3.6 ICA Performance 25

4. Producer Action 28

4.1 History 28
4.2 The 1993 Coffee Retention Scheme 30
4.3 The 1994 Aluminum Memorandum of Understanding 33
4.4 The 5th International Cocoa Agreement 37
4.5 Assessment 39

5. Conclusion 40

References 43
Tables 46
Figures 48
Appendix 55

International Commodity Control - Retrospect and Prospect

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Summary

The International Natural Rubber Agreement is, in 1995, the only international commodity agreement (ICA) which maintains the capability of active market intervention. The remaining ICAs have either lapsed or collapsed (sugar, tin) or have been replaced by agreements whose role is primarily that of improving information (cocoa, coffee). The commodity agreement movement is effectively dead.

There is a widespread perception that commodity agreements have "failed", as the tin agreement in 1985, and indeed that any attempt to control a market price will inevitably fail. This over-simplifies the story of the breakdown of international commodity control. The demise of the cocoa and coffee agreements was not through tin-style collapse, or because prices were held at too high a level. Instead, the end of coffee control was the result of a lack of willingness of the parties to continue playing the ICA game. This loss of faith was partly the result of a continuing disagreement with regard to what the ICAs were meant to achieve, with producers more interested in the level than the variability of prices, and partly to discontent about the division of the spoils when an agreement did manage to raise prices, as in coffee. But above all, commodity market control sits uneasily in a world in which all markets (primary, manufacturing, labour) are becoming increasingly competitive.

One response by primary producing companies and governments to the ending of international commodity control is an attempt to manage supply unilaterally. The notable attempts to act in this way have been in the coffee and aluminum markets. The evidence suggests that these schemes have had relatively small and short-lived effects. However, if commodity prices fall back to the very low real levels experienced during 1990-93, it is likely that schemes of this sort will move up the international agenda, particularly in those industries where there is a history either of international control.

1. Introduction

Taming commodity markets[1] through the negotiation of international commodity agreements (ICAs) was one of the main planks of the so-called New International Economic Order (NIEO) of the nineteen seventies. In 1995, only one ICA (natural rubber) maintains the capability of active market intervention. The remaining agreements have either lapsed or collapsed (sugar, tin) or have been replaced by agreements whose role is primarily that of improving information (cocoa, coffee). The commodity agreement movement is effectively dead.

Nevertheless, commodity prices remain highly variable, and are often at levels lower than developing country producers consider just. The consequence is that producing countries have attempted to replace active ICA intervention through unilateral action organized by associations of producing countries. 1993-94 saw developments of this sort in coffee and aluminum, the latter a commodity which has never been regulated through an ICA.

There is a widespread perception that commodity agreements have "failed". This was evidently true of the tin agreement which collapsed spectacularly in 1985, but there is tendency to draw the conclusion that the tin collapse demonstrates that any attempt to control a market price will inevitably fail. For example, the *Economist*, commenting on the collapse of the tin agreement, stated "The first lesson is that the road down which the tin men have clattered - that of artificial control of a market - leads to ruin" (*ibid*, 2 November 1985). Similarly, the Economist Intelligence Unit is reported as stating that "giving long term support to prices" is a "commitment which has brought about the collapse of most international commodity agreements to date".[2] Comments of this sort ignore the fact that the tin agreement was successful in controlling the tin price for 25 years; they ignore the success of OPEC in

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[1] See Corea (1992).

[2] *Financial Times*, 18 February 1992, p.36.

controlling oil prices for the decade following 1974; they ignore the remarkable ability of de Beers to control the world diamond market; and they suggest an over-simple explanation for the more general lapse of international commodity agreements.

The objective of this paper is to examine the events which led up to the lapse or collapse of commodity market control through international commodity agreements. The demise of intervention under the cocoa and coffee agreements was not through tin-style collapse, or because prices were held at too high a level, but instead was the result of a lack of willingness of the parties to continue playing the ICA game; and the natural rubber agreement came close to succumbing to the same problem. This loss of faith was partly the result of a continuing disagreement with regard to what the ICAs were meant to achieve, with producers more interested in the level than the variability of prices, and partly to discontent about the division of the spoils when an agreement did manage to raise prices, as in coffee. But above all, commodity market control sits uneasily in a world in which all markets (primary, manufacturing, labour) are becoming increasingly competitive. Those ICAs which lingered on in this non-interventionist environment were undermined by the growing belief that commodity stabilization cannot succeed and has not succeeded.

In addition, this paper updates the discussion in Gilbert (1987) where I reviewed the structure and performance of the five ICAs which were active in the nineteen seventies and the first half of the eighties. That paper was published shortly after the collapse of the tin agreement, although the initial drafts predated those events, and indeed predicted the possibility of collapse. At that time, the cocoa, coffee and natural rubber agreements were all active.

Finally, I consider the attempts by commodity producers to control commodity markets outside the framework of commodity agreements. To the extent that commodity agreements failed to be renewed because of consumer country opposition, or insistence on stabilization objectives which producers considered too modest, it is natural for producers to attempt to obtain the same objectives without the consent of consumers. The notable attempts to act in this way have been in the coffee and aluminum markets, although in aluminum there was no recent

history of international control.[3]

The structure of this paper is as follows: Section 2 reviews the history of international commodity agreements, the rationale of intervention through buffer stocks and export controls, and the problems associated with such intervention. Section 3 considers the reasons for the breakdown of commodity market control through commodity agreements and attempts an assessment of the performance of the agreements. Section 4 looks at unilateral producer action to raise prices, specifically in the coffee and aluminum industries. Section 5 contains conclusions.

2. International Commodity Agreements

2.1 Historical Review

In the postwar period, commodity market control under United Nations auspices started in 1954 with the International Sugar Agreement (ISA) and the International Tin Agreement (ITA). Subsequent agreements with "economic clauses" were the International Coffee Agreement (ICoA, 1962), the International Cocoa Agreement (ICCA, 1972) and the International Natural Rubber Agreement (INRA, 1980). Table 1 summarizes the main properties of these five agreements.[4]

The main concern which motivated the ISA and ITA was the possibility of very low prices, as experienced in the nineteen thirties, attributable to a "burdensome surplus" of supply over demand (Rowe, 1965; Gilbert, 1977). The principal instrument envisaged in both

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[3] I confine the discussion to agreements between producers, and thus exclude the de Beers arrangement in which a single company has maintained a near monopoly on diamond sales. Neither do I explicitly discuss the oil market, largely because oil would require a paper in its own right.

[4] This table may be used to update the information in Tables 2, 3 and 4 of Gilbert (1987).

agreements was supply management administered through export quotas, although the ITA also employed a small buffer stock for fine tuning interventions. The ICoA was largely modelled on the ISA and operated entirely through supply control. It was motivated less by any concern for price stabilization than by the hope that it might raise the prices and hence the export revenues of the coffee producers, then concentrated in Latin America. Paradoxically, the hostility between the USA and Cuba, which caused almost insurmountable problems for the ISA, effectively gave birth to the ICoA.

The steady growth of the world economy through the fifties and sixties gave rise to generally high returns from commodity investments so that return to the conditions prevailing in the nineteen thirties became almost unimaginable. This change in outlook was reinforced in the first half of the nineteen seventies by the "Limits to Growth" concern that non-renewable resources might be approaching exhaustion through over-exploitation (Meadows *et al.*, 1972), apparently confirmed by the commodity price boom of 1973-74 followed by the tripling of oil prices in 1974. The consequential transfer of spending power away from the industrial countries led to a sharp recession on 1975, with the result that non-oil commodity prices lost their recent gains. (Coffee, which had missed out on the 1973-74 boom, enjoyed high prices over this period due to crop failure in Brazil). Developing country commodity producers saw in the example of OPEC the possibility of achieving the stable high prices which they needed for development, were required for conservation, and were owed in justice. Lacking OPEC's power to achieve this prices unilaterally, they looked to the international community to provide these prices through ICAs. Thus was born the New International Economic Order.

Developed country governments remained ambivalent on the general principles of the NIEO, but argued for a commodity-by-commodity approach which would ensure that any interventions would complement rather than substitute for market forces. The only common element of these two programmes was buffer stock price stabilization which could be justified if market forces resulted in inadequate storage. The official rhetoric of the ICA negotiations, which took place in Geneva under the auspices of UNCTAD, now related to the variability

rather than the level of prices;[5] and the buffer stock displaced export controls as the intervention instrument. In practice, much of the debate concerned the level about which prices would be stabilized, with the developing countries looking for stabilization at a "remunerative" level which would yet be "equitable" to producers. Resolution 93(IV) of UNCTAD sought prices stabilized around levels which would be "remunerative and just to producers and equitable to consumers" (UNCTAD, 1976)[6]. In a similar vein, the Brandt Report called for "the stabilization of commodity prices at remunerative levels" (Independent Commission of Experts, 1980, p.158). This studied ambivalence makes evaluation of the success of ICAs problematic.

This is the background against which the INRA came into operation in 1980, and the (3rd) ICCA was negotiated in 1981. The INRA operates entirely through buffer stock intervention although the ICCA envisaged the possibility of supply controls once the maximum buffer stock was held. The ITAs also evolved so that, by the time of the 5th (1976) and 6th (1982) agreements, the buffer stock had become at least as important as export controls in the armoury of the International Tin Council (the ITC). The 3rd and 4th ICCAs were also entirely buffer stock based as had been the first two ICCAs (1972, 1975) where the buffer stock mechanism was untried - the cocoa price had remained above the intervention range throughout both agreements.

While the decades 1955-74 saw steady growth in the world economy and high returns to primary commodity producers, the two decades 1975-94 have exhibited lower growth and greater turbulence in the world macroeconomy with substantially lower real commodity prices. At the end of 1992, many primary commodity prices were lower in real terms than at any time in the postwar period. In this context, the first concern of developing country primary producers was the level rather than the variability of prices.

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[5] See Brown (1980) and Corea (1992) for contrasting accounts of these negotiations.

[6] Reproduced in Brown (1980, p.274) and Correa (1992, p.206)

Prices have recovered substantially since mid 1993, led by agricultural commodities with metals following in 1994. However, there are already signs that this mini-boom may be fading out, and the important issue is the level to which prices drop back once demand growth and speculative interest abate. Only then will it be possible to judge the extent to which the low real prices of the late eighties and early nineties were a cyclical phenomenon and the extent to which there has been a permanent shift in the terms of trade of primary commodities relative to manufactures.

In what follows I try to isolate the factors which were responsible for the lapse or collapse of market intervention through ICAs. Buffer stock agreements raise somewhat different issues from those important in export control agreements, and I discuss these first in section 2.2. Section 2.3 covers export control agreements. Then, in section 3 I look in detail at the precise sequence of events in the five active agreements. Section 4 considers the unilateral producer control movements that have succeeded some commodity agreements, and section 5 contains conclusions.

2.2 Buffer Stock Stabilization

Three ICAs (the ICCA, INRA and ITA) have relied wholly or partly on buffer stock intervention. As implied above, the buffer stock is a candidate instrument for reducing or eliminating price fluctuations about a known long run level.

Buffer stock stabilization rests on an implicit premise that private sector storage is inadequate. This may be a valid assumption in the absence of efficient futures markets since individual risk aversion will in general result in investments (here investment in storage) requiring inappropriately large risk premia (Arrow and Lind, 1970). However, futures markets allow separation of the speculative and storage decisions with the result that stockholding becomes near riskless and so should be little affected by individual risk aversion.[7] In that case,

[7] Danthine (1978) and Holthausen (1979). See also Anderson and Gilbert (1992).

public sector storage should be governed by the same criteria as private sector storage, and it is simply invalid to claim that the high volatility that these markets exhibit justifies public sector storage. In fact, all three commodities for which there have been active buffer stock agreements are traded on futures markets. The implication is that funds invested in commodity buffer stocks could have earned higher returns in other activities. This is clearly the case in tin, where member contributions were entirely lost, but applies also to cocoa and natural rubber.

At the practical level, buffer stock stabilization faces two major problems:

a) the long run price level about which stabilization should take place may change over time, requiring updating of the stabilization range; and

b) even if the stabilization range is appropriately defined, the intervention authority may lack the resources to keep the price within the range.

The long run sustainable price may change over time because of changes in production costs, or of consumer tastes. Problems associated with updating of price support ranges became central in the three buffer stock ICAs. In the two decades to 1973, buoyant real prices in conjunction with low inflation in the developed countries implied that periodic upward revision of ranges was required. This seldom proved controversial since, with actual prices generally above the stabilization range, consumer country governments did not see range revisions as likely to raise realised prices. By contrast, over the two decades from 1975, falling real prices and (since 1981) low inflation have implied that actual prices have tended to be at the bottom of the price range in buffer stock agreements. The ITA contained no mechanism for revision of the price support range, and this range also suffered from an implicit dollar link.[8] The lack of updating procedures was an important factor in the collapse of the ITA.

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[8] From 1972, the ITA price support range was denominated in terms of the Malaysian dollar which was closely linked to the US dollar during the nineteen eighties.

By contrast, if the stabilization range adjusts so rapidly that it simply tracks the market price, the agreement will not stabilize prices to any useful extent. Specifically, if an agreement stabilization range is revised down to a sufficiently large extent in relation to weak market conditions, producing countries will cease to perceive any interest in the so-called stabilization exercise. The INRA does include provisions for periodic revision of the support range, but these revisions have proved unpopular with producing governments since with weak prices, downward revision has implied a fall in actual prices. Disputes over downward revision of the price support ranges were important in generating disenchantment in the 2nd INRA, and also in the 4th ICCA.

The second problem is that buffer stock stabilization can be expensive. This is obvious if "stabilization" is around a price in excess of the long run market clearing level, but it will also be true in a "neutral" scheme in which the correct long run price level has been identified. Theoretical models suggest that commodity price cycles will exhibit long flat bottoms punctuated by occasional sharp peaks (Williams and Wright, 1991; Deaton and Laroque, 1992). This view implies that buffer stock stabilization will be an expensive instrument for dealing with low prices since stocks will need to be held over a long period, but will also be ineffective at the peaks, which arise from stockouts. These difficulties are exacerbated by the fact that public sector storage displaces private stocks, so that the intervention authority finds itself carrying much or all of the stock that the private sector would have held in the absence of intervention (Miranda and Helmberger, 1988). Townsend (1977) has shown that any neutral price-fixing scheme will eventually exhaust available resources. It is clear that the less finance an intervention authority has available, the earlier this likely exhaustion date. Lack of finance severely handicapped the ICCA and was a major cause of the collapse of the ITA.

In practice, the updating and finance difficulties become mutually entangled. Long investment lead times allow the possibility that metals and tree crop commodities can experience acute excess or (more rarely) under-capacity for sufficiently long periods of time as to make buffer stock stabilization about the supposed long run price infeasible. This factor was important for both the ICCA, as the result of severe excess capacity during the nineteen eighties, and in

the ITA, where exhaustion of Malaysian alluvial deposits had resulted in a sustained period of under-capacity in the seventies. If it is only feasible to stabilize prices around a medium term rather than a long term level, the lower the resources available for stabilization, the greater the need for flexible updating procedures. The ITA broke down because the agreement was inadequately financed, was attempting to stabilize at too high a level and was carrying the entire world surplus. The 3rd and 4th ICCAs were both poorly financed and committed to stabilizing the price at too high a level. The INRA has been more successful, but could not reverse a trend decline in real prices and, as price support levels have fallen, has come to be seen as of only marginal value to producers.

2.3 Stabilization using Export Controls

Three ICAs (the ICoA, the ISA and the ITA) have relied wholly or partially on export controls. Export controls are better seen as an instrument for raising prices from unsustainably low levels than for stabilizing prices. This is because effective controls can compel reductions in available supply in the face of low prices, but can seldom compel producers to increase supply in the face of high prices. This asymmetry arises from the fact that producers in a competitive market are collectively better off from reducing exports from the levels which maximize profits on an individualistic basis, even if individually they are worse off.[9] However, an increase in exports from the individualistic maximization level reduces profits individually and collectively.

The tendency for metals and tree crop commodities to experience long periods during which prices are beneath long run average costs arises out of the interaction of long investment lead times and stockholding. If price or consumption growth expectations are over-optimistic, these industries can find themselves with significant over-capacity. But because capital costs form a large component of total costs, variables costs will be covered even with prices

[9] In terms of simple game theory, this is the move from the non-cooperative to the cooperative solution in the prisoners' dilemma game - see e.g. Tirole (1988, pp.258-60).

significantly beneath long run average costs. Only the least efficient plants (or plantations) will find it worthwhile ceasing production. But with production remaining above consumption, the excess must be added to stock, and the resulting stock overhang will keep prices low even after capacity comes back into line with demand. (In the converse case of under capacity arising from insufficiently optimistic expectations, stocks are low and so prices can fall back once new capacity becomes available).

Export controls are a response to the "burdensome surplus" situations arising from the interactions of the investment and stock components of the commodity cycle. They face three major problems:

a) they rely on a comprehensive compliance both by actual and potential producers;

b) they may introduce distortions; and

c) the potential benefits may be appropriated through or dissipated in rent-seeking activities.

Compliance is always a problem in any cartel-like arrangement. Each producer benefits from the price rise in resulting from other producers' supply restrictions, but would benefit himself by maintaining or even increasing his own production level (since price is now above marginal cost). Every producer therefore has an incentive to renege but is aware that obvious violations of the agreement will encourage others to follow. Because these agreements typically do not redistribute profits between members (i.e. they do not permit "side payments"), low cost producers, who might be inclined to expand even at low price levels, feel the weakest attachment and it is therefore essential that the arrangements should be such that they do not look for opportunities to withdraw. Potential producers, or producers who were too small to be included in the scheme, are unrestricted. Supply restrictions therefore tend to encourage both production by non-members and non-compliance by members. This was a serious problem in tin where Brazil, a non-member of the ITA, found it profitable to substantially expand production under the umbrella of ITC export controls. Current discussions on cocoa market control are faltering

in part because of reluctance by Indonesia, a low cost producer, to restrict its expansion. However, its proponents would argue that the ICoA managed to maintain comprehensive compliance over more than two decades.

The allocation of export quotas has the potential to distort both the production structure of the industry, since low cost member producers are unable to expand at the expense of high cost producers, and also the consumption structure, if more than one grade of the commodity is produced. Grade distortion was a major problem in the ICoAs, where consumer preferences moved during the eighties towards high quality mild arabica coffees at the expense of robustas and unwashed arabicas. The ICoA's historic quota allocations generated a significant premium for mild arabicas, while at the same time the agreement allowed production in excess of quota of these premium coffees to be sold at substantial discounts in non-member consuming countries (largely in eastern Europe and south-east Asia) - see Bohman and Jarvis (1990).

As primary prices generally declined in real terms during the nineteen eighties, the price raising features of the export control agreements became more transparent than previously, but at the same time, growing evidence that, at least in the case of coffee, quota allocations in many instances generated rent-seeking, cast doubt on whether the coffee growers themselves were always beneficiaries of these prices. The extent and effects of rent seeking behaviour of this form in the Indonesian coffee sector has been well documented by Bohman *et al.* (1993). The result of such activities is that the coffee producers have come to see little direct benefit to themselves from the control agreement. The extent to which the benefits from higher prices are diverted to others or simply dissipated in wasteful activities is difficult to gauge.

Rent seeking and the distortion of markets are problems of market efficiency. The extent of inefficiency introduced by resort to export controls will increase the longer they are in effect. Increasingly, therefore, the international community has come to see attempts to formalize export control arrangements into long term agreements as misguided. It is less clear, however, that there may not be benefit from permitting arrangements of this sort as short term emergency arrangements.

3. Breakdown

3.1 The International Sugar Agreements

The precise events which led to the lapse or breakdown of the five agreements under consideration were complicated. The economic provisions of the 2nd sugar agreement were suspended in 1962 when Cuba, denied access to the US market, sought a very substantial increase in quota which other producers were unwilling to concede. The agreement lapsed in 1963. The 4th (1978) ISA was a victim both of poor drafting and of the European Union's (EU) Common Agricultural Policy (CAP) which saw the EU move from being a net importer of sugar to become the single largest net exporter in the world.[10] ISA export controls related to a set of "basic export tonnages", but these were calculated in such a way as to allow substantial increases in member country exports with the result that International Sugar Organization (ISO) controls had very little potential to affect prices. But in any case, the EU had declined to join the 4th ISA arguing disingenuously for a buffer stock agreement. The USA also supported domestic sugar production, and limited imports with a tough quota regime. The ISO was therefore powerless to reverse a decline in prices which took the real sugar price to a postwar low in 1985. When the 4th ISA, extended to the end of 1984, finally terminated, the arrangements which replaced it did not contain market intervention clauses.[11]

3.2 The International Tin Agreements

It was the dramatic collapse of the 6th tin agreement on United Nations Day (24 October) 1985 which, more than any other single event, persuaded the developed world that commodity price stabilization is infeasible. The history of tin price stabilization under the first five ITAs

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[10] Strictly the European Community at that time. However, I adopt the current nomenclature throughout.

[11] This paragraph summarizes a longer account in Gilbert (1987).

was generally successful. The agreement floor had only been penetrated on a single occasion, and then only briefly. The International Tin Council (ITC) had been less successful at holding the price beneath the ceiling, particularly during the seventies when the stabilization range tended to chase after the price, but nevertheless industry generally regarded the exercise as worthwhile.

The seeds of the problems which were to be experienced during the 6th ITA were sown in the final year (1981) of the 5th ITA when the ITC buffer stock accumulated a very large holding in the face of the collapse in demand as developed country governments attempted to grapple with the inflationary potential of the second oil price rise. This stock was inherited by the ITC under the 6th ITA, but in part because the Reagan administration declined to renew US membership, the ITC lacked sufficient finance to hold the stock. Tough export restrictions implied that the buffer stock holding did not increase significantly during the 6th ITA. However, becuase the ITC had insufficient funds to purchase more than a small fraction of the market overhang outright, and because of ITA limits on the overall level of holdings, the buffer stock manager (BSM) was forced into a number of complicated forward market and other transactions which, while they ensured that the ITC's holdings (in the sense of the tin which it legally owned) were within the ITA limits, resulted in an exposure substantially in excess of the ITC's assets. In effect, the ITC paid the London metal trade to hold the stock on its behalf while offering full insurance against any price fall. These devices worked well for the ITC until 1985 as the implicit link of the stabilization range to the soaring US dollar implied rising sterling prices and hence gains on the ITC's London forward market positions (denominated in sterling). However, as the dollar fell from February 1985, the ITC started to make losses on these positions, and with no new funds forthcoming, became insolvent on 23 October. These events are summarized in Anderson and Gilbert (1988).

Forward (futures) market operations were not the cause of the ITA collapse. Rather, ability to trade on the futures market was the factor which allowed the ITC to continue to hold the tin price from 1981 through 1985 despite an almost complete lack of funds. Instead, the 6th ITA collapsed because it was insufficiently financed, thereby forcing the tin BSM into covert and dubiously legal forward transactions. Anderson and Gilbert (1988) estimate that these

activities prolonged the life of the agreement by perhaps six months. They also resulted in substantial losses to London metals traders,[12] and, for a time, called into question the integrity of the London Metal Exchange (the LME), the major international market for non-ferrous metals.

Even if the 6th ITA had been adequately financed and the BSM had confined himself to spot market support, the agreement would have run into much more serious problems than those experienced by the first five ITAs. Figure 1 shows the tin price more than doubling relative to the World Bank metals and minerals prices index during the latter half of the seventies.[13] This rise in prices was the result of declining tin content in the increasingly exhausted Malaysian alluvial deposits, Malaysia being the largest tin producer at that time. During this period, the price was generally above the stabilization range and this resulted in the ITA support range chasing the market price upwards. The consequence was that when metals prices peaked in 1980, the ITC was committed to a higher range than would ever have been contemplated five years earlier. At the same time, the rapid expansion of low cost tin production in Brazil (not a member of the ITA) combined with the capture of the beverages can market by aluminum resulted in a fall in the sustainable tin price with the consequence that the nominal dollar tin price is now little different from that in the mid nineteen seventies, prior to the major rise in prices. So although the immediate cause of the breakdown of the 6th ITA was insolvency due to futures market operations, the fundamental causes were lack of finance and a change in underlying market fundamentals.

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[12] Kestenbaum (1991) chronicles their battle for compensation.

[13] Sources: tin price - World Bureau of Metal Statistics, *World Metal Statistics* (Ware, Herts., various issues); metal and minerals index - Commodity Policy and Analysis Unit, International Trade Division (Washington D.C.).

3.3 The International Cocoa Agreements

As in sugar and tin, the four cocoa agreements also struggled against a background of major supply problems. The price during the first two ICCAs (1972-79) was always substantially above the ceiling of the support range as the result both of low rainfall in west Africa, reducing yields, and maladministration by the military government of Ghana (then the largest producer). The high prices in 1976-79 not only made a mockery of the 2nd ICCA but also indirectly undermined the 3rd ICCA by suggesting a stabilization range which, *ex post*, appears to have been too high, and by stimulating excessive planting in the Côte d'Ivoire, which displaced Ghana as the largest producer, and also in Brazil, Indonesia and Malaysia. The situation in the 3rd and 4th ICCAs was therefore the reverse of that in the earlier agreements, with the price in general beneath the ICCA stabilization range (see Figure 2).[14]

The 3rd ICCA, which was chronically under-financed (neither the largest producing country, the Côte d'Ivoire, nor the largest consuming country, the USA, were members) exhausted its entire financial resources within three months of the start of the agreement in purchasing 100,000 tons of cocoa. The 4th ICCA limited the size of the buffer stock to 250,000 tons, the equivalent of around six weeks consumption. Total stocks at the end of the 1986-87 crop year were estimated as 650,000 tons, and these rose to 1,376,000 tons by the end of the 1991-92 crop year. But because the ICCO inherited 100,000 tons from the 3rd agreement, it was only able to accumulate a maximum of a further 150,000 tons. Against this background, it was clearly unrealistic to expect the agreement to have any significant effect on the cocoa price. Although the 4th ICCA made provision for an increase in the maximum allowable size of the buffer stock to 350,000 tons, this provision was never invoked.

The 3rd and 4th ICCAs specify floor and ceiling prices, but the effective price range is defined by the gap between the lower intervention "must buy" price (the LIP) and the upper

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[14] Source: International Cocoa Organization, *Quarterly Bulletin of Cocoa Statistics*, (ICCO, London), various issues.

intervention "must sell" price (the UIP). The 4th ICCA also defines an inner band between "may buy" and "may sell" prices. Figure 2 graphs the ICCO indicator price (an average of London and New York prices) is US ¢/lb, together with the LIB and UIB prices specified in the 3rd and 4th ICCAs. The rise in the US dollar during the course of the 3rd ICCA depressed dollar cocoa prices independently of any movement in the supply-demand balance, and, with the ICCO's finances exhausted, the price fell beneath the specified range. To overcome this exchange rate problem, the 4th ICCA specified the stabilization range in SDR terms, and for this reason the range graphed in Figure 2 varies with the dollar-SDR exchange rate. The agreement specifies semi-automatic downward revision of the LIP and UIP after purchase of 75,000 tons of cocoa, and again if a further 75,000 tons was purchased. Here, semi-automatic means that the ICCO Council has the opportunity to agree to a revision, but, in the absence of agreement, a downward revision of specified size is imposed.

The 4th agreement came into force in October 1987 and the ICCO buffer stock rapidly accumulated 150,000 tons of cocoa bringing it to its maximum permitted level of 250,000 tons. On a precise interpretation of the agreement, this should have triggered two downward revisions of the price range. The first downward revision took place in January 1988 (although this is obscured in Figure 2 by a contemporaneous appreciation of the dollar). However, the second revision was resisted by the producing member countries on the argument that, since the buffer stock was now at its maximum size, there was nothing to be gained from further downward revision of the LIP. This ignores the fact that downward revision would also have affected the UIP. This disagreement, together with a lack of finance (many countries were in arrears with respect to their contributions) which effectively prevented increase in the allowable buffer stock size, resulted in suspension of the economic clauses of the ICCA in February 1988.

The 4th ICCA contained provisions on withholding which were designed to augment the buffer stock facility. In the event that the maximum buffer stock was attained, producing countries would withhold cocoa from the market in domestic stockpiles. The ICCO would pay for the storage costs of this cocoa, but would not be required to purchase it. This was seen as a less expensive way of keeping the market in balance than the accumulation of a large buffer

stock. However, with the economic clauses of the ICCA suspended, these provisions were never activated and the ICCA has simply turned over its stock. In any case, the effect of domestic stockpiles is doubtful given the high costs of storage and the absence of adequate storage facilities for cocoa in many of the producing countries.

The 4th ICCA was extended in this dormant form to September 1993. The buffer stock inherited from the 4th ICCA are to be liquidated over a four year period from 1 October 1993. The 5th ICCA, which came into effect in October 1993, is discussed below in section 4.4.

3.4 The International Coffee Agreements

The International Coffee Agreement is both the most important and the most controversial of the ICAs which has remained in operation over the past decade. The agreement is important because more developing countries are dependent on coffee exports than on any other single non-oil primary commodity; it is controversial because, since it operated entirely through export controls, it laid itself open to the charge of being an internationally sanctioned cartel whose objectives were primarily raising rather than stabilizing the coffee price. Palm and Vogelvang (1991, p.119), for example, conclude "The [ICoA] appears to be favorable to producing countries who earn more revenues from their exports because they are smaller in quantity but sold at a higher price" - see also Herrmann (1988). Importantly, it was also seen as distorting the operation of the market - see Bohman and Jarvis (1990).

The ICoAs operated through quotas on coffee exports which were triggered if a 15 day moving average of the ICO composite indicator price (CIP), which is an average of dollar other mild and robusta prices, fell below a designated trigger (134.5 ¢/lb from 1981) and further increased if this moving average fell beneath two further triggers (120 ¢/lb and 115 ¢/lb). The quotas were reduced if the average broke through two upper triggers (140 ¢/lb and 145 ¢/lb) and suspended if the average exceeded a final trigger (150 ¢/lb) for a 30 day period. Although the ICoAs do not contain an explicit price stabilization range, the gap between the suspension trigger and the lower quota increase trigger implicitly defines a target range (115-150 ¢/lb from 1981).

Figure 3 graphs the actual CIP and this implicit range over the period of the 3rd and 4th ICoAs, and also the intervention range defined in the September 1993 retention scheme - see section 3.2.[15] The 3rd ICoA had come into operation during the 1975-79 price boom. The consuming country members were initially reluctant to see the reintroduction of quotas, but eventually agreed in September 1980 on the understanding that a group of Latin American producers desisted from attempts to raise the price outside the scope of the ICoA. Helped by frost in Brazil in 1981, the ICO quotas generally managed to achieve stable prices within the implicit ICoA range. Drought conditions in Brazil during 1985-86 coffee year resulted in the suspension of controls in February 1986, to be reintroduced the following year as supply recovered and prices fell back again. "Independence Day" for coffee was 4 July 1989 when quotas were again suspended despite the fact that the CIP had not reached any of the trigger levels for quota reduction.

The technical reason for the July 1989 suspension of the ICoA quotas was that, with the 4th agreement due to end on 30 September, there appeared to be no basis for a new agreement with economic clauses. A number of different factors combined to generate dissatisfaction with the way that the ICoAs had operated, but there was no consensus as to how this should be changed. On the consumers' side, dissatisfaction related to the market distortions perceived to be generated by the ICoA. Consumer tastes have shifted over time towards the high quality arabica beans produced by the Colombian "milds" (Colombia, Kenya, Tanzania) and "other milds" (mainly central American) groups of producers, but the ICO quota allocation tended to generate a higher premium for this type of coffee over the prices of robustas (produced in Brazil, Indonesia and Africa) and unwashed arabicas (produced in Brazil). Dramatic evidence for this was provided by the February 1986 suspension of quotas: over the following year, the premium of mild arabicas over robustas fell from 42% to just 6% (March 1987 compared with March 1986). But consuming countries were also irritated by the fact that the ICoAs permitted unlimited exports to non-member consuming countries at free market prices which, particularly

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[15] Source: International Coffee Organization, *Monthly Report on Prices*, (ICO, London), various issues.

in the case of high quality arabicas, were often at a considerable discount (estimated at 30-50%) to ICO prices. It was subsequently agreed that any new agreement would use "universal quotas".

On the producers' side, despite the recognition that the ICoAs had generally achieved a combination of high and stable prices, there was disagreement over the division of the spoils. The "other milds" group of producers perceived the existing ICoAs as acting primarily for the benefit of Brazil, which produces robustas and the lower quality unwashed arabicas, and the African robusta producers. Rotemberg and Saloner (1989) have emphasized the role that stocks can play in strategic behaviour between cartel members. This possibility was dramatically illustrated by the (not altogether successful) attempt by Saudi Arabia to discipline the other OPEC members in 1986, and although this threat was never implemented in the ICoA, in the early agreements Brazil had the capability of doing this. However, as the result of depletion of her stock levels after the 1975 frost and the 1985-86 drought, Brazil's dominant position as coffee stockholder was seriously weakened by the late eighties, This is illustrated in Figure 4 which graphs Brazil's share of total gross producer stocks at the October start of the coffee years 1967-92.[16] Perceiving this diminution of Brazil's implied threat to disrupt the coffee market if her quota were not maintained, the other milds group were only prepared to agree to a 5th ICoA if the quota allocation were reallocated in their favor.

Practice under the first four ICoAs was that the allocation of quotas was the responsibility of the Council of the ICoA, which was required to take into account a number of factors including the market position. In practice, the quota allocation had only moved marginally in favor of the other milds producers during the 4th ICoA - the total quota for Colombian and other milds stood at 44.3% when quotas were suspended in July 1989 against 43.1% nine months earlier as the result of a redistribution of part of the Angolan quota. This redistribution, which also increased the Brazilian quota, did little to address the perceived pro-Brazilian bias in the

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[16] Source: International Coffee Organization, *Supply of Coffee*, (ICO, London), various issues.

quota allocations, and indeed the total milds quota remained substantially lower than the 47.7% obtained in 1980-81 in the aftermath of the Brazilian frost. The other milds producers, supported by the USA, but opposed by Brazil, the African robusta producers and the EU, argued for quota reallocation to be embodied in any new agreement.

The determination of the "other milds" producers to hold out for a quota redistribution may have been reinforced by a World Bank study circulating around this time which argued that, although the 3rd and 4th ICoAs significantly stabilized both prices and producer revenues, they typically did not give rise to higher revenues for countries other than Brazil and Colombia, and that aggregate revenues would recover from the ending of controls after less than a decade (Akiyama and Varangis, 1989, 1990).[17] In fact, prices fell by 40% in the two years following the suspension of quotas (coffee year 1990-91 compared with 1987-88, the last full year of control), and remained at around that level for four years. Furthermore, the fall in mild arabica prices was not dramatically less than that in robusta prices (35% and 48% respectively over the same period).

The situation was complicated by the lack of consensus in Brazil in favor of market intervention. The Brazilian industry was controlled by the Instituto Brasileiro do Cafe (the IBC), and it was widely considered within Brazil that it was the IBC itself, rather than the coffee growers, which was the principal beneficiary of coffee stabilization. Indeed, the coffee exporters tended to favor a free market, while the roasters (Brazil is the second largest coffee consuming country) were at best ambivalent. Collor became President in April 1990, and one of his first moves was to abolish the IBC. A major difficulty in attempting to negotiate a new ICoA was that for much of 1990-91 Brazil had no clear coffee policy. Brazil had always been

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[17] These results are a consequence of export quotas being met in part by increased stockholding, which has the effect of subsequently reducing prices, together with the tendency for producers other than Brazil and Colombia to profitably dispose of excess production on non-quota markets. The results differ from those reported by Herrmann (1988) and Palm and Vogelvang (1991) who saw producers in general as benefiting from the ICoA controls. Akiyama and Varangis (1989) is dated February 1989 and was in circulation by the summer of 1989.

central to the operation of the ICoAs. Consumer governments had agreed to the reintroduction of controls under the 3rd ICoA in September 1980 when Brazil had demonstrated that, in the absence of an agreement, it would attempt to enforce high prices by coordination of a producers organization (Productores de Cafe S.A., PANCAFE); and Brazil had maintained its large share of quotas despite a declining share of world production through the implied threat of flooding the market from its stockpile. Now that Brazil lacked the will to enforce an agreement on the other producing countries, the ICoA broke up.

Coffee market control lapsed, therefore, because there was no clear consensus for its continuation. It seems likely that the ICoA could have been saved in 1989 by a 4% increase in the total other milds quota to 48%, a move which had US support. It is probable that, two years later, all producers would have accepted a new agreement on this basis but by this time the consumers, who could now see both the price and the market distortion consequences of the ICoAs, were no longer interested in playing ball. The ICoAs have been successful both in raising and perhaps also in stabilizing prices, but at a cost. For consumers, the cost was grade distortion, limiting the availability of high quality arabicas, and market distortion, whereby these same coffees were sold at much lower prices in non-member countries. For producers, the cost was a freezing of the historic distribution of production. Much of the benefit of high prices may have been lost either to governments (through export taxes) or to third parties (through rent seeking). In the end, there was insufficient support in either producing or consuming countries for a continuation of the previous form of agreement despite a general view in the producing countries that some form of agreement would be desirable.

Negotiations for a new ICoA eventually took place in 1993, and the 5th ICoA came into effect in October 1994. Despite the fact that the agreement does not contain any provisions for direct market intervention, congressional opposition prevented the US from joining. Indeed, the realization that the US Congress might not ratify a further agreement with "economic clauses" even if the grade and non-member distortions had been solved, and the appreciation that an export control agreement could not be successful without US membership, may have diminished the incentives to try to resolve these issues. Subsequent developments in the coffee market are

discussed in section 4.2.

3.5 The International Natural Rubber Agreement

The rubber agreement is the only ICA which still gives rise to active market intervention. The structure of the INRA is quite complicated - see Table 1. Intervention is defined in terms of a Daily Market Indicator Price (DMIP) which is an average of the Kuala Lumpur, London, New York and Singapore cash prices, all converted to be f.o.b. Malaysia in an average of Malaysian and Singapore ¢/kg (MS ¢/kg). The INRA denominates a floor and ceiling which will have been unchanged from the start of the first INRA in October 1980 until the third INRA comes into force in 1996. The effective floor and ceiling are, however, the lower and upper trigger action prices (the LTAP and the UTAP) where the International Natural Rubber Organization (INRO) BSM is required respectively to buy and sell. Within this range are the lower and upper intervention prices (the LIP and UIP) which determine the prices at which the BSM may respectively buy and sell. If the price is between the LIP and the UIP he is constrained to inactivity. The INRAs have been successful in the same terms as the first five ITAs in that the price has generally remained above both the INRA floor and the LTIP - see Figure 5.[18] However, as in the ITA, the INRO was unable to contain the price beneath either the ceiling or the UTAP during the AIDS-inspired latex boom of 1987-88 when its buffer stock became exhausted. From 1989 until mid-1994 the rubber price was close to or within the lower intervention range.

The INRA makes provision for automatic revision of the reference price, and hence also the UTAP, UIP, LIP and LTAP which are defined symmetrically around this price, if the average DMIP is above the UIP or below the LIP over a six month period (also if buffer stock sales or purchases exceed a specified amount over a six month period). The reference price was

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[18] Source: International Rubber Study Group, *Rubber Statistical Bulletin* (IRSG, Wembley), various issues.

revised up in April 1989 towards the end of the 1987-89 boom, only to be revised down again in July 1990. A further downward revision was triggered in November 1992. However, producing countries disputed this requirement which depended on the use of an unrounded rather than a rounded price in comparing a the DMIP average of prices with the reference price (the six month average was 175.95 MS ¢/kg against the LIP of 176 MS ¢/kg). The actual agreement is silent on the matter of rounding, but it had previously been INRO practice to report and make decisions on the basis of average prices calculated to two decimal places. In any event, the producers declined to agree to the revision, and there was no official stabilization range until February 1994. The INRA was in limbo from November 1992 in that the BSM had no clear criteria by which to operate. However, when in September 1993 the DMIP fell beneath the "as if" downward revised LTAP, the BSM again felt free to buy, presumably because the DMIP was now beneath the LTAP on both the revised and the unrevised basis. After protracted wrangling, the support range was finally retrospectively adjusted downwards from February 1994.

This disagreement was symbolic of a deeper problem - the producer countries felt that stabilization of the price at the low levels prevailing in 1992-93 offered them little advantage. Many took the view that it would be preferable to initiate export controls through their producers' organization (the Association of Natural Rubber Producing Countries, ANRPC) rather than to continue to tie up funds in the INRO.[19] Negotiations for the third INRA proceeded laboriously through 1993 and 1994 necessitating two extensions of the second INRA to the end of 1995. With no further extension possible, agreement was eventually reached in February 1995 for a third agreement which will come into effect in 1996. The price range constituted the major difficulty in renegotiation, with producers seeking some restoration of the cuts triggered during the second INRA and consumers resisting this. The prolonged dispute through 1993 exacerbated these tensions. Compromise was facilitated by the rally in rubber prices during 1994, even despite the sale of the accumulated buffer stock. The rubber price climbed steadily

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[19] Malaysian primary industries minister Dr. Lim Kheng Yaik was quoted as saying "We want INRA but not at any cost. Producers must protect themselves. They should not allow themselves to be trampled on by the rich and powerful consuming nations." (*Financial Times*, 16 May 1993).

through 1994 with the result that in the final quarter of the year it was above the INRO stabilization range - see Figure 5 - and indeed even above the notional ceiling price of 270 MS ¢/kg. The compromise raised the symbolic floor price but left the effective stabilization range unchanged but subject to review within six months of the new agreement coming into force. The most important outstanding issue is whether the United States' administration will be able to persuade Congress to ratify a new INRA. If they do ratify, this will be the only ICA of which the USA is a member.

The INRA has survived essentially by being relatively innocuous. The determination of consuming country members of the agreement to ensure that the INRA does not distort prices has resulted in the stabilization range being revised down to a sufficiently large extent that the INRO has been left with little opportunity to stabilize prices. Indeed, at least since 1985 the rubber price history graphed in Figure 5 is almost a paradigm of the flat-bottomed sharp-peaked cycles generated by private sector storage in the Williams and Wight (1991) and Deaton and Laroque (1992) models and allows little residual role for the INRO.

3.6 ICA Performance

There has always been disagreement about the extent to which ICAs have either stabilized or raised prices. Evaluations have typically relied on counterfactual simulation of econometric models - see for example Palm and Vogelvang (1988) and Vogelvang (1988) on coffee. However, exercises of this sort are inevitably qualified by worries over the extent to which the models provide adequate descriptions of producer and consumer behaviour. Here I experiment with the simpler alternative of event study methodology, which is both a cruder and less formal method than econometric evaluation.

In Table 2 I give price averages for cocoa, coffee, sugar and tin annually from the time of the cessation of intervention.[20] In each case the prices are measured relative the World Bank 33 Commodity Index, over the period from one year before the lapse (cocoa, coffee, sugar) or collapse (tin) of the economic clauses of the agreement to the present. The horizontal axis measures the time, in years, since the breakdown of support (and therefore corresponds to a different date for each of the four commodities). In each case, the end of the agreement is associated with prices of around 40% lower than during the final year of the agreement. Furthermore, these lower prices are seen to persist for at least four years. Taken at face value, this exercise suggests that the ICAs may have raised prices quite substantially.

Nevertheless, even where it is possible to attribute these lower prices to the ending of the ICA, it would be wrong to draw the conclusion that the ICA resulted in a price premium of this order. The four commodities considered in Table 2 form two pairs. In the case of cocoa and sugar it is arguable that the agreements lapsed because the extent of over-supply in the market implied that it was no longer possible to attempt to stabilize prices at historic levels. In these cases, the lower post-ICA prices are the evidence of this over-supply and were not caused by the collapse of the relevant agreement. Neither is it possible to argue that in either case was this over-supply due to the operation of the ICA. In coffee and tin, by contrast, the lower post-ICA prices are attributable to the collapse of stabilization, and result largely from the release of stocks accumulated during the stabilization period. In both cases it seems likely that stabilization did result in prices above long run production costs, but the release in stocks will have depressed the price to beneath this level. Over time, one would expect the price to rise towards its long run as stocks run down. This has happened to some extent, but in coffee the process has been interrupted by the developments I will discuss in section 4.2, and in tin demand growth has failed to reach expectations.

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[20] Sources: Commodity Policy and Analysis Unit, International Trade Division, World Bank (Washington D.C.). The date for lapse of the ISA is somewhat arbitrary: I use May 1982 when the sugar price fell beneath the floor of the target range.

Did these agreements also stabilize prices? The comparison of the stabilization and post-stabilization experience is more mixed here. Looking at the three year period immediately following the lapse or collapse of stabilization in relation to the three year period terminating one year prior to this, the coefficient of variation of coffee prices fell from 23.6% to 10.7%. Coffee moved from a regime of relatively high but volatile prices to one of stable depressed prices. By contrast, the coefficients of variation of cocoa and tin rose respectively from 6.9% to 14.3% and 8.2% to 14.3%. However, the rise in variability of the cocoa and tin prices is entirely accounted for by their lower average price levels - the standard deviations of the prices are almost identical before and after the end of stabilization. The sugar price remained highly volatile both before and after the lapse of the ISA.

Economic theory suggests that commodity prices should be less variable at low levels than at high levels (Williams and Wright, 1991; Deaton and Laroque, 1992), and any stabilizing effects of intervention may have been offset by the volatility-depressing effects of high stock overhangs. Broadly, therefore, the end of these three agreements has seen substantially reduced price levels with price variability either more or less unchanged, or declining in line with the lower level of prices.

Evaluation of the overall success of the ICAs is problematic because there has never been a clear international consensus over whether the objectives of these agreements is the reduction of price variability or the achievement of higher prices. We have seen that there is little *prima facie* evidence of ICAs reducing price variability. However, while the rhetoric of the agreements emphasized reduction in price variability, but producer governments tended to see this claimed reduction as a means of bringing the consuming countries on board what they hoped would be a programme for raising prices. There is a general consensus that at least the ICoA did have this effect, and it seems likely that this is also true of the ITAs.

Downward revision of the price stabilization range brought these tensions into the open since it posed a straight choice between the level and variability of prices. This tension is illustrated by the contrast between tin and rubber: the ITA lacked provisions for the downward

revisions of prices, with the consequence that the ITC attempted to stabilize about an unrealistically high price level; by contrast, the INRA forced the stabilization range to follow the price down with the result that, in maintaining a price only slightly above the effective floor of the LTAP, the INRO had very little stabilizing effect. This conflict goes to the heart of any buffer stock stabilization exercise. Since there is no reason to suppose that private storage is inadequate, the use of public sector stocks to "stabilize" prices about the long run competitive level will never do more than displace an equivalent level of private stocks. Buffer stock stabilization will therefore either be ineffective (the INRA) or distortionary (the ITA).

These arguments do not apply to the ICoAs which relied on export controls. Furthermore, it is in coffee that intervention has most obviously raised prices. The ICoAs did not include explicit price objectives, and so there was not the opportunity for disagreement about the stabilization range. Instead, the ICoAs broke down because of an unevenness and perceived unfairness of the distribution of the benefits among and within the producing countries; because consuming countries were unhappy with the market distortions generated by the operation of ICoA quotas, and above all, because Brazil, always central to the operation of the ICoAs, became ambivalent about the benefits of control. The coffee industry was becoming more competitive, not least within the producing countries themselves, and, in particular, Brazil. These changes gave rise to a constituency within the producing countries who were concerned less with the level of coffee prices than with the controls and taxes associated with the ICoA regime. Hence, even when an agreement achieved both the objectives of higher and more stable prices, the means by which these objectives were obtained ceased to be acceptable.

4. Producer Action

4.1 History

A standard response by producers to weak market conditions has been to combine together to limit either production or sales. Action of this sort is clearly anti-competitive but governments have often been willing to tolerate or even encourage these combinations on the

argument that the public interest is better served by the continued availability of the capital stock and maintenance of employment than by allowing consumers the temporary benefit of prices below long run costs. At the same time, governments have been anxious to ensure that these arrangements do not continue once markets recover. In practice, collusion is easier to maintain in weak market conditions since potential entrants are also likely to be discouraged by low potential profits.

These arguments apply to a wide range of industries but they have always been acute in the primary sector because of the very long lead times in investment. This applies in mining (a new mine will typically take between seven and ten years to reach production while extensions to an existing mine may take three to five years) and in tree crops (trees will require at least three to five years growth before becoming productive). In these industries excess capacity can persist for periods which are significantly longer than those associated with the industrial business cycle. It is arguable that general over-capacity of this sort may have been responsible for the low level of real commodity prices experienced over the late eighties and early nineties.

In this context, it is perhaps natural for primary commodity producers to respond to the lack of international action to stabilize prices by attempting to do so unilaterally, often within associations of producing countries. Indeed, in so doing, producers are in effect coming round full circle, in that the impetus behind the first postwar ICAs was to provide consumer representation, and thereby international sanction, for similar producer arrangements which had existed in the interwar period. More recently, OPEC provided a possible model for action of this sort, the first INRA in 1979 was preceded by a producer agreement within the ANRPC, and many of the same countries joined together in 1986 after the collapse of the 6th ITA to form the Association of Tin Producing Countries (the ATPC).

There is little evidence that either the ANRPC nor the ATPC had any significant effect on price levels. In much the same spirit, coffee producers responded in 1993 to the continuing low levels of coffee prices by initiating a retention scheme and, at the same time, in aluminum, where there has never been an ICA, the major producing companies joined together to sign a

Memorandum of Understanding (the MoU) in relation to restrictions in supply. It is widely believed that these two arrangements have had some effect on price levels. At the same time, the 5th ICCA, which lacks clauses which would permit active market intervention, has a brief to organize withholding arrangements of a similar sort.

4.2 The 1993 Coffee Retention Scheme

The breakdown of coffee market intervention in 1989 was followed by prices 40% lower than those preceding the breakdown. Furthermore, by the summer of 1993 it was becoming increasingly difficult to believe that this period of low prices would be quite temporary. It seems probable that the continuing low level of prices resulted from producing countries attempting to maintain export revenues by exporting stocks accumulated during the control period, and that in the context of unexciting demand growth, consumers could only be persuaded to hold these stocks by prices significantly beneath long term sustainable levels. The short run supply elasticity in coffee is low since harvesting costs are typically small in relation to total costs, and 1993 was the first year in which there is evidence of a decline in production as the effects of low replanting levels and less active maintenance begin to show.

The impetus towards a new arrangement to bolster coffee prices came jointly from the Central American producers. It may have been reinforced by the negotiation of the 5th ICO, which came into effect in October 1994, but which lacked any market intervention instruments. Brazil and Colombia suggested the establishment of a floor price beneath which they would commit themselves not to sell, but this rapidly transformed itself into a proposal for withholding stocks. At a July 1993 meeting in Rio de Janeiro, Brazil, Colombia and Guatemala, agreed on a scheme to withhold 20% of scheduled shipments, and at a meeting in Kampala in August, the African coffee producers agreed to join the scheme. The full 20% withholding would take place so long as the ICO indicator price remained beneath 75 ¢/lb, dropping to 10% for prices within the range 75-80 ¢/lb. A price above 85 ¢/lb would trigger release. The relative modesty of this proposal may be seen by comparing these prices with the ICoA quota trigger ranges of 110 ¢/lb and 150 ¢/lb - see Figure 3. The plan was finalized at a meeting in Brasilia in September

although the target price ranges agree at that meeting were not officially announced. By this stage, the arrangement was agreed by all major producing countries including Indonesia, a country which had earlier been most sceptical in relation to the possibility of price support. This wide level of acceptance assured doubters that the domestic costs of withholding exports would be covered by the additional revenues raised on the 80% or production exported through enhanced prices.

The coffee producers also agreed to form a new organization, to be known as the Association of Coffee-Producing Countries (the ACPC). It is intended that eventually the coffee retention programme, in abeyance at the end of 1994 because of high prices, will be managed by the ACPC in place of the current *ad hoc* Coffee Retention Committee (CRC). Negotiations to create the ACPC started in February 1993 but it was the failure in May 1993 of the negotiations for the 5th ICoA, which became operational in October 1994, to agree the continued use of export controls which essentially stimulated the producing countries to look instead to the ACPC. The initial impetus towards its foundation came from Brazil, Colombia and the central American producers, but African producers were also sympathetic. At the end of 1994, the agreement to create the ACPC has been ratified by insufficiently many producing countries to bring the organization into formal existence but this appears to reflect tight legislative timetables rather than reluctance. Article 30 of the 1994 ICoA permits the ICC to "examine the possibility of negotiating a new International Coffee Agreement which could contain measures designed to balance the supply and demand for coffee" (ICO, 1994). It would not be too far-fetched to regard the ACPC as the producer side of the ICO sidestepping the lack of intervention provisions in the 5th ICoA and awaiting this "new" agreement.

The expectation of the retention scheme had an immediate effect on the coffee price which rose from a first quarter average of 65.4 ¢/lb to reach 73.5 ¢/lb in the final quarter, a rise of 12%. Furthermore, the coffee market was becoming tighter even disregarding the effects of the withholding arrangement as demand growth picked up with the result that the upward movement in the coffee price continued in the first five months of 1994 with the result that it had effectively doubled over the year to May 1994. This resulted in the release of the withheld

stocks in two tranches, the first in May and the second in July 1994.

The coffee market is always vulnerable to adverse weather conditions in the southern Brazilian states of Minas Gerais (now the coffee producing state), Parana and Sao Paulo. The severe frost in 1975 caused the boom prices of 1976-78, and drought conditions in 1985-86 resulted in the high prices of 1986. It is remarkable that the (southern hemisphere) winter of 1994 saw two severe frosts together with low rainfall in this same area which together generated a jump in the coffee price during June and July 1994 giving an overall fivefold increase over the year.

Evaluation of the impact of the coffee retention scheme is difficult since it is clear that the largest part of the increase in price was caused by the very tight market conditions resulting from the shortfall in the Brazilian crop against the background of stronger demand growth. Indeed, since the major effect of the retention scheme was simply to delay exports, it seems unlikely that prices could have been affected by the scheme after the mid-year when the retained stocks were released. In Figure 6, I plot the ICO CIP against the World Bank index of agricultural food prices with the ratio normalized at 100 in June 1993, the month before the initial Rio meeting. This plot suggests a significant effect from the announcement of the scheme, perhaps giving rise to a 20% rise in the price in the autumn of 1993,[21] but with the ratio back to near its June level in the first quarter of 1994, as the prices of other agricultural food products benefited from tighter markets resulting from rapid demand growth. The largest claim that can be made is therefore that the coffee retention scheme resulted in the coffee price rising some months earlier than would otherwise have been the case.

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[21] This figure slightly underestimates the extent of the relative rise in coffee prices since the comparator index has a coffee content. There is however some suggestion of an element of options-related manipulation in the London September coffee contract which may make the peak price during that month unrepresentative of market conditions. Sources: agricultural foods index - Commodity Policy and Analysis Unit, International Trade Division, World Bank, Washington DC; ICO CIP - ICO, *Monthly Report on Prices*, various issues.

4.3 The 1994 Aluminum Memorandum of Understanding

The aluminum industry has never been the subject of international control, and indeed it was not on UNCTAD's list of core commodities. This reflects the fact that it is predominantly a developed country commodity, because although bauxite is mined in developing countries, the value added in the industry is largely at the smelting stage and this tends to be located principally where relatively inexpensive electricity (generally hydroelectricity) is available. Until the end of the nineteen seventies, the aluminum industry was effectively under the control of the major producing companies who set relatively stable producer prices, so that there is a history of something approaching regulation.

The structure of the industry has changed dramatically over the past decade, in part because of a decrease in concentration and in part because of the successful introduction of futures trading (in 1978) on the LME - see Haskel and Powell (1994). The refined aluminum price is now as variable as the prices of other traded commodities (Slade, 1991). Of even greater concern to the industry, however, was the fact that prices fell to very low levels over the five year period 1989-93. Initially, this was the effect of industrial recession, and the fall in price was of the same order as that in other non-ferrous metals. However, from 1991 these already low prices were exacerbated by a massive increase in exports of refined aluminum from the ex-Soviet Union, largely the Russian Federation. Reported figures indicate a jump in exports from the former Soviet Union from 274,000 tons in 1990 to 1,521,000 tons in 1993.[22] The 1993 is equivalent to 10% of "western world"[23] consumption of aluminum. The rise in Russian exports arose from the coincidence of the collapse of demand from traditional (largely defence oriented) users of aluminum in the former Soviet Union in conjunction with relatively low

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[22] World Bureau of Metal Statistics: *World Metal Statistics Yearbook 1994*. Actual exports in 1993 may have been significantly in excess of this reported figure. Tons are metric tons. Nickel also experienced a large rise in exports from the ex-Soviet Union.

[23] i.e. excluding ex-COMECON countries and China, for which historical data are unreliable.

internal energy prices and an acute shortage of foreign currency. In the context of static demand, these exports were largely absorbed into stocks held principally on the LME, and these high stock levels transmit directly into a low real price.

The initial reaction of many producers was to wonder whether Russian exports could be limited under anti-dumping legislation. This campaign was led by the European Aluminium Association who in November 1993 persuaded the EU to negotiate a voluntary export restriction scheme with Russia. Irrespective of the merits of the argument that the metal was being dumped, the proposal was unlikely ever to be effective since, in a world market, it is irrelevant where the Russian aluminum was sold - restriction of sales in Europe would merely divert the aluminum to Japan or North America. Indeed, it was that fear which forced the North American producers to consider action on their own part. Initial talks were held in Washington in December with a subsequent round in Brussels in January. US producers were seriously constrained by fears of violating anti-trust legislation and so at a formal level these talks were conducted by government representatives. As a consequence the MoU has merely advisory status with regard to private sector companies. In practice, it is difficult to believe that the initiative was not taken by the companies themselves, although this may be tested in the courts.

The Russians took the position at these talks that cuts in production should be equitable across all producers, and that they should not be singled out for larger cuts simply because, in terms of western markets, they were a new producer. The European and North American producers realised that this was the only basis for an agreement, and a draft Memorandum of Understanding (the MoU) was produced by the EU Commission to this effect. The Russian aluminum producers agreed to cut production by 300,000 tons per year (9%), rising to 500,00 tons per year (15%), while western producers were "expected" to follow with cuts of 1.5-2m tons per year (10-13%), although no precise figures were given in this regard because of concerns on the part of US producers relating to anti-trust legislation. The signing of the draft MoU also allowed the EU controls on imports of Russian aluminum to lapse. The draft MoU was formalized at a further meeting in Ottawa in the first days of March.

The aluminum price started to rise in December 1993, and it seems likely that the prospect of an agreement to limit production was one factor behind this rise. However, the prices of the other non-ferrous metals also started to rise at the same time, and there were no special factors in these industries. Metals prices have boomed in 1994 and these relatively high prices look likely to be sustained into 1995. The major factor behind the metals price rises in general has been a surge in consumption growth, the question in regard to the MoU is whether there has been any differential price rise in aluminum relative to other metals.

The situation in aluminum is in some respects similar to that in coffee: in both industries an intervention scheme was negotiated just prior to an upturn in the price which would have taken place regardless of the agreement, although in neither case could this have been anticipated. It would therefore be quite wrong to attribute either the price rise wholly to the agreement. I have suggested that the coffee retention scheme is likely to have brought part of the price rises forward in time, but that it probably had little effect on price levels from June 1994 onwards since there is neither production levels nor subsequent stock levels have been affected. In aluminum, by contrast, the MoU was intended to cut both production and stock levels. The question, therefore, is whether there has been any such cut. Current data are insufficient to allow a firm conclusion, but preliminary figures show 1994 "western world" refined aluminum production at 14.4m tons against 15.1m tons for 1993. This is a substantial fall which has reduced production to 1989 levels. The largest part of the fall is attributable to the USA, down from 3.7m tons to 3.3m tons.[24] By contrast, Russian production is ambiguous but preliminary evidence suggests that the agreed cuts have failed to materialize.[25] Against this, it is widely held that production in Russia would have further increased in the absence of the MoU as the result of new capacity becoming available.

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[24] *World Metal Statistics Yearbook*, 1995 (World Bureau of Metal Statistics, Ware, Herts.).

[25] *Metal Bulletin*, 25 July 1994.

In Figure 7, I plot the ratio of the (dollar) aluminum price to the prices of respectively copper, lead, nickel and zinc over the period July 1993 to May 1995, normalized so that in each case the average for the three months September-November 1993 (i.e. just before the start of the price rise) is equal to 100. This graph shows that the behaviour of the aluminum price over 1994 and the first part of 1995 was remarkably similar to that of copper, lead and nickel but that the zinc price has fallen relative to other non-ferrous metals prices. This comparison suggests that, if special factors are to be invoked, these are required to explain why the zinc price has failed to share in the 1994 non-ferrous metals price surge rather than to explain any particular feature of the aluminum history.

This conclusion contrasts strongly with the dominant view in the aluminium industry which attributes a significant effect to the MoU. Aluminum analysts tend to point to the high level of aluminum stocks relative to those in copper - total commercial stocks amounted to 3.6 months consumption at the end of 1993 compared with 1.8 months in copper. However, the level of aluminum stocks is comparable with those in nickel (4.2 months consumption) so it is not clear that these stock levels would have resulted in depressed price growth in the absence of the MoU. In general, the effect of high stocks should primarily be seen in the level of prices, rather than in the response of prices to a shock, and it is true that the aluminium price remained beneath estimated long run production costs for most of 1994.[26] It is also true that "western world" production of aluminum fell by 4.4% in 1994 from its 1993 level, and this may be taken as indicative of the effects of the MoU. At the same time, refined copper production (on the same basis) fell by 2.1%.[27] It is unclear how what proportion of the fall in aluminum production can be attributed to the MoU rather than simply to closure of expensive capacity.

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[26] Econometric analysis suggests that demand shocks will typically have a much larger effect on aluminum prices than supply shocks, essentially because demand shocks are sustained over time while supply shocks have an effect which decays relatively rapidly. Focusing solely on the supply-demand balance, which gives equal weight to supply and demand shocks, may be misleading - see Gilbert (1995). For data sources see footnote 24.

[27] World Bureau of Metal Statistics, *World Metal Statistics*, June 1995 (Ware, Herts.).

It is therefore somewhat more difficult to reach a clear conclusion on the effectiveness of the aluminum MoU than it was with the coffee retention scheme. The rise in aluminum prices over 1994-95 is not out of line with the price rises in comparable metals, but there has been a sharp fall in production levels against a background of a continuing high stock level. Russia has not obviously kept to its MoU commitments. The overall effect of the MoU has been to allow a shift in the location of production to Russia with the result that Russia has now become an integrated part of the world aluminum market. This has required western companies to reduce their production levels to accommodate the Russians. The MoU has provided a framework within which these reductions have taken place so that no single company has borne a disproportionate burden. Despite this, the largest reductions have taken place in north America.

4.4 The 5th International Cocoa Agreement

The 5th ICCA differs from the previous four ICCAs in that reliance on a buffer stock has been discontinued. As noted, the ICCO buffer stock has never been effective in stabilizing the cocoa price, both because of lack of funds and because of an at times inappropriately defined stabilization range. Instead, the new ICCA places reliance on supply management. The crucial article (29.1) states

> "In order to deal with the problem of market imbalances in the medium and long term, and in particular the problem of structural overproduction, the exporting Members undertake to abide by a production-management designed to achieve a lasting equilibrium between world production and consumption. The plan shall be drawn up by the producing countries in a Production Committee set up for this purpose by the Council." (United Nations, 1993).

Pursuant to this objective, the ICCO met in June and then again in September 1994 when they agreed to cut production by 75,000 tons per year (3%) over the five years starting with crop year 1994-95. Although this cost appears modest, it is in the context of overall balance between

production and consumption, with high but declining stock levels. It was notable that Indonesia, estimated to be the third largest producer in 1993-94, declined to commit to this agreement. News of the proposed cuts had no noticeable effect on market prices.

The cocoa supply management scheme appears similar to the aluminum MoU but within the framework of an ICA. This reflects the fact that in tropical products, small and moderate sized producers are typically represented by governments, whereas in metals transnational companies tend to dominate. However, the scheme does appear fundamentally misconceived in two respects. First, the management of production is difficult in tree crop commodities because the marginal costs of harvesting fruit are typically small. It is for this reason that the ICoAs, and their continuation in the coffee retention scheme, have always envisaged control of exports rather than production. Second, the agreement is based on the premise that there can be a long term imbalance between production and consumption that the price mechanism will not correct.

It is true that in this as in other tree crop and metals industries, excess capacity can persist over periods of up to perhaps five to seven years because of the long lead times involved in investment, and the long life of trees. However, low prices will result in low investment and over time this will result in prices returning towards long run production costs. This broadly appears to have happened over the nineteen eighties, with the substantial excess capacity resulting from expansion in the Côte d'Ivoire now having been worked off. It is possible that an element of supply management, if feasible, could have been helpful over this period, but there appears little merit in the proposal in current market conditions. The long period of relatively low prices in the cocoa industry may have conditioned producers into believing there is something inevitable in this situation (contrast similar views in the thirties and the immediate postwar years), but if so, the 5th ICCA appears to be addressed to a problem which is already in the past.

4.5 Assessment

There has been a long history in the primary industries of official or semi-official cartel action in the face of weak prices.[28] In the postwar period these schemes tended to become more formal and were typically enacted under United Nations auspices. These developments culminated in the UNCTAD Integrated Programme for Commodities (IPC) which attempted to set up intervention schemes across the broad range of internationally traded commodities of particular importance to developing countries. With the lapse of this initiative, producers have tended to be attracted by supply management or stock withholding schemes more along the lines of the pre-ICA period, and a number of such schemes have been negotiated either within (the 5th ICCA) or outside (the coffee retention scheme, the aluminum MoU) the framework of an ICA. However, it is difficult to see strong evidence of any of these schemes having had any more than a short term impact on prices.

I have noted that in both metals and tree crop industries, imbalances between the level of demand and that of productive capacity can persist over uncomfortably long periods of time, and, when these take the form of over-capacity, this can lead to long periods of low prices. Supply management and stock withholding provide feasible means of responding to these situations. Provided the schemes are only intended to be temporary, entry is unlikely to be a serious problem since potential entrants are likely to prefer to await price recovery. In one sense, this objective of the avoidance of very low prices was the original motivation of the ICA movement before this became subsumed under the more general but less attainable objective of price stabilization. It is arguable, therefore, that this refocusing is welcome.

Nevertheless, schemes of the sort described in this section are cartels, and their embodiment in the form of an ICA makes them internationally sanctioned cartels. Developed country governments remain ambiguous in this regard with the EU generally favorable but the USA hostile. The USA signalled its displeasure at the coffee retention scheme and the formation

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[28] See Rowe (1965) for an account of the interwar period.

of the ACPC by withdrawing from the ICO, with a US official quoted as stating "opposition to unilateral producer action, formed outside international commodity agreements, remains the official US stance" (*Financial Times*, 28 September 1993). Similarly the aluminum MoU is under investigation by the Department of Justice as a possible infringement of anti-trust legislation.[29]

5. Conclusions

Commodity agreements fit uneasily in a world in which markets are becoming globalized and increasingly competitive. Development policy, both as preached by international agencies and practised by typically democratically elected and non-socialist governments in the major producing countries, emphasizes productive efficiency, product quality and effective marketing. This is a long way from the ideology which gave central place to supply restrictions operating through centralized marketing boards and quota allocations. In this less centralized and more competitive world, the winners and losers from commodity stabilization are more evenly distributed across the producing and consuming countries. Commodity policy is no longer a matter or redistribution from consumers to producers.

This institutional evolution has been reinforced by the widespread belief, evidenced by the tin collapse, that commodity market stabilization cannot succeed. However, no other commodity agreement has collapsed. Rather, they have lapsed. In sugar, this was because of adverse market conditions which many attempt at stabilization impractical. In cocoa, there was never sufficient support for stabilization for the authority to have the funds to intervene effectively in a market which in any case moved from a chronic state of deficient capacity in the nineteen seventies to chronic excess capacity in the latter half of the eighties. In the coffee market, stabilization was effective both in raising prices and containing their variability, but intervention lapsed because of disagreement over the division of the benefits between countries, and because the effects of high prices were often not experienced by producers themselves. By

[29] The USA is not a member of the 5th ICCA and was not involved in its negotiation.

contrast, the natural rubber agreement soldiers on but only by intervening at such a low level as to cause little enthusiasm in producers and little resentment in consumers.

Although there are no easy generalizations, there is a persistent theme. In earlier decades, the belief that stabilization could and would collectively improve the position of commodity producers provided the impetus for resolution of at least some of the problems that actual intervention threw up. Since the tin collapse in 1985, the converse belief has undermined the willingness of producers to look for resolutions of difficulties within existing ICAs and has reinforced the suspicions of consumer governments that these agreements were in no-one's interests. In any case, interventions of this sort rest uneasily in the current climate in which competitive markets are encouraged and state interventions are seen as requiring clear justification in terms of market failure. The existence of active futures markets in all of the industries which have seen commodity agreements makes justification along these lines problematic.

Nevertheless, the "commodity problem" has not disappeared. Primary industries are prone to experience long periods in which the price remains below long run costs and this can result in severe hardship to producers, and also in many cases, to their governments. When developed country industries (e.g. steel and shipbuilding) experience problems of this sort, governments generally offer some form of assistance, justified either by distributional considerations, or through the desire to avoid substantial labour market adjustment costs. The same sorts of arguments may in principle be applied at an international level in primary markets, and this motivates producers to look for mechanisms to raise prices from often very low levels in industries experiencing excess capacity. If these are not offered within the framework of an international commodity agreement, producers may seek to attain the same objectives unilaterally through a producers association. Schemes of this sort have been implemented in 1993 and 1994 in the coffee and aluminum industries outside the confines of an ICA; and are being discussed within the 5th ICCA.

It is possible that such schemes may generate major benefits to producers, but the evidence suggests that the coffee retnetion scheme has had relatively small and short-lived effects, while the effects of the aluminum MoU have primarily been on the location of production rather than on price levels. This reflects the fact that both schemes were introduced just prior to the 1994 commodity boom, and in other circumstances the effects might be more dramatic. If commodity prices do fall back to the very low real levels experienced during 1990-93 it is likely that schemes of this sort will move up the international agenda, particularly in those industries where there is a history either of international control (as in coffee) or where concentration has been sufficient to give large firms a dominant role in setting prices (as in aluminum). These developments will force developed country governments to decide whether they prefer to see markets controlled by producer cartels where they will lack representation, or under the auspices of international agreements.

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Table 1: General Features of ICAs

	Cocoa	Coffee	Rubber	Sugar	Tin
First agreement	1972	1962	1980	1954	1954
Current/final agreement	4th*	4th*	3rd	4th	6th
date	1987	1983	1996	1978	1982
US membership	no	yes*	uncertain*	yes	no
Breakdown/lapse of economic clauses	suspended	suspended	continues	lapsed	collapsed
date	1988	1989		1983	1985
Buffer stock	yes	no	yes	no	yes
ceiling	+ 23.1%	n.a.	+ 28.6%	n.a.	+ 15%
floor	- 23.1%	n.a.	- 25.2%	n.a.	- 15%
must sell/buy	± 18.2%	n.a.	± 20%	n.a.	± 15%
may sell/buy	± 18.2%	n.a.	± 15%	n.a.	± 5%
Export controls	no	yes	no	yes	yes
Withholding provisions	yes	no	no	no	no
implemented	no	n.a.	n.a.	n.a.	n.a.

* The 5th ICCA and the 5th ICoA, which both came into force in 1994, lack buffer stock and export control provisions. The 5th ICCA has withholding provisions. The USA was a member of the 4th ICoA and the 2nd INRA but did not join the 5th ICoA. Its attitude to the 3rd INRA has yet to be determined. Buffer stock trigger prices are relative to the (actual or implicit) central reference price.

Note: no data

Table 2: Post-ICA Price Changes

Years	Cocoa	Coffee	Sugar	Tin
-1	100.0	100.0	100.0	100.0
0	64.7	66.3	54.9	61.2
1	52.4	69.0	63.5	57.3
2	59.0	60.2	33.8	50.2
3	57.0	56.0	42.1	59.7
4	53.4	75.3	56.2	49.1
5	55.0	135.5	58.0	44.0

Source: IECCP

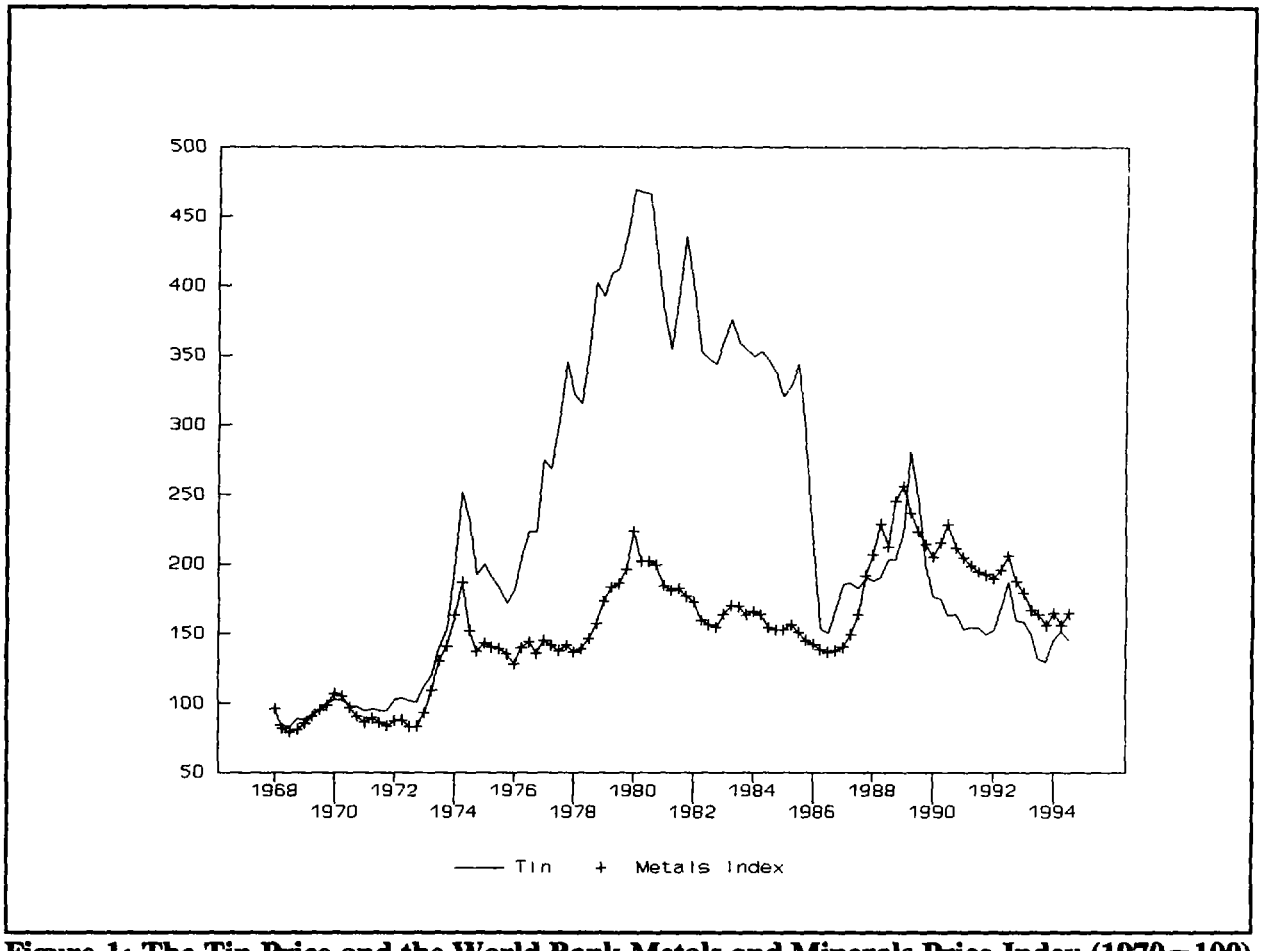

Figure 1: The Tin Price and the World Bank Metals and Minerals Price Index (1970=100)

Source: *World Metal Statistics*, World Bureau of Metal Statistics; IECCP.

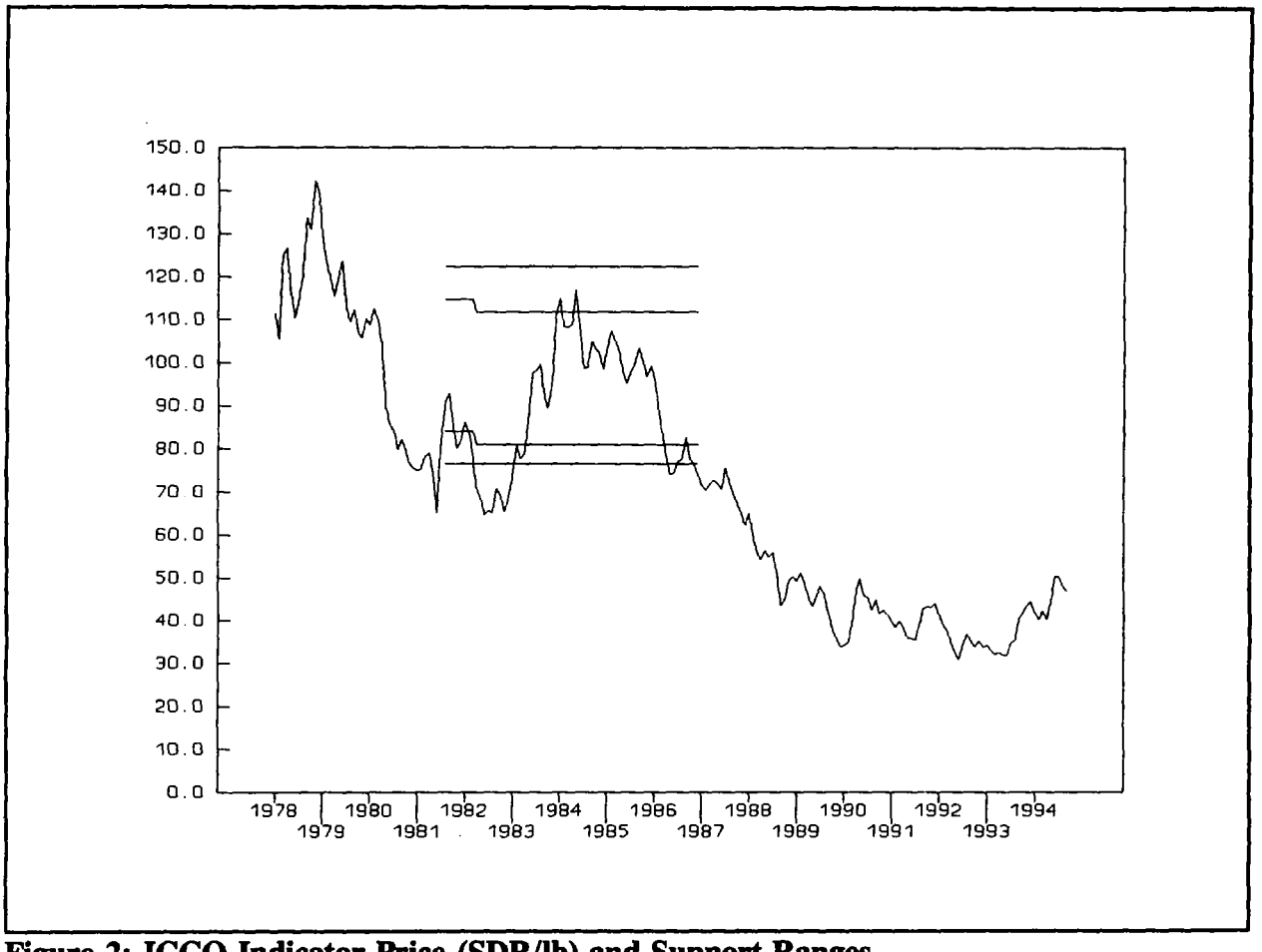

Figure 2: ICCO Indicator Price (SDR/lb) and Support Ranges

Source: *Quarterly Bulletin of Cocoa Statistics*, ICCO.

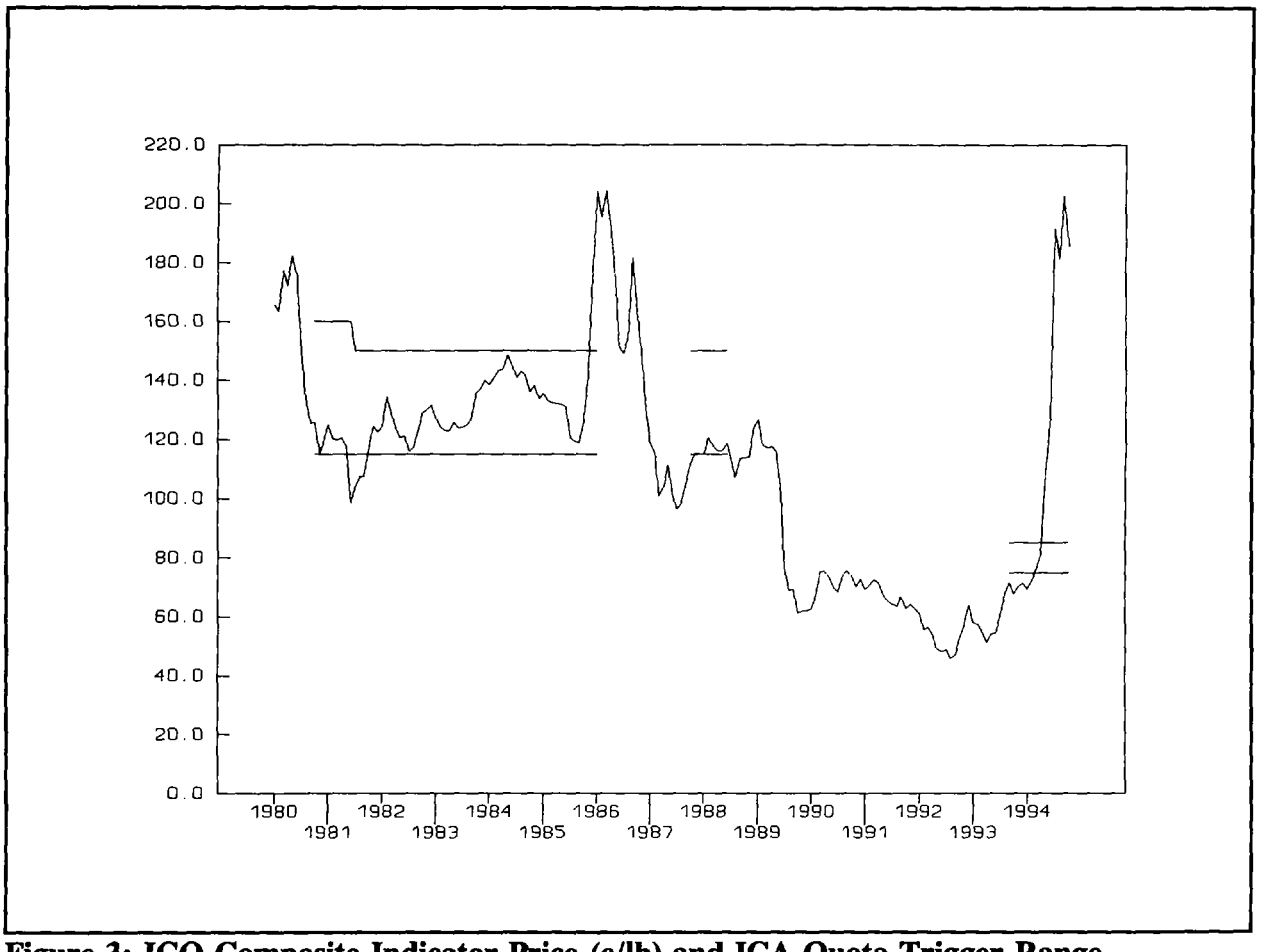

Figure 3: ICO Composite Indicator Price (c/lb) and ICA Quota Trigger Range

Source: *Monthly Report on Prices*, ICO.

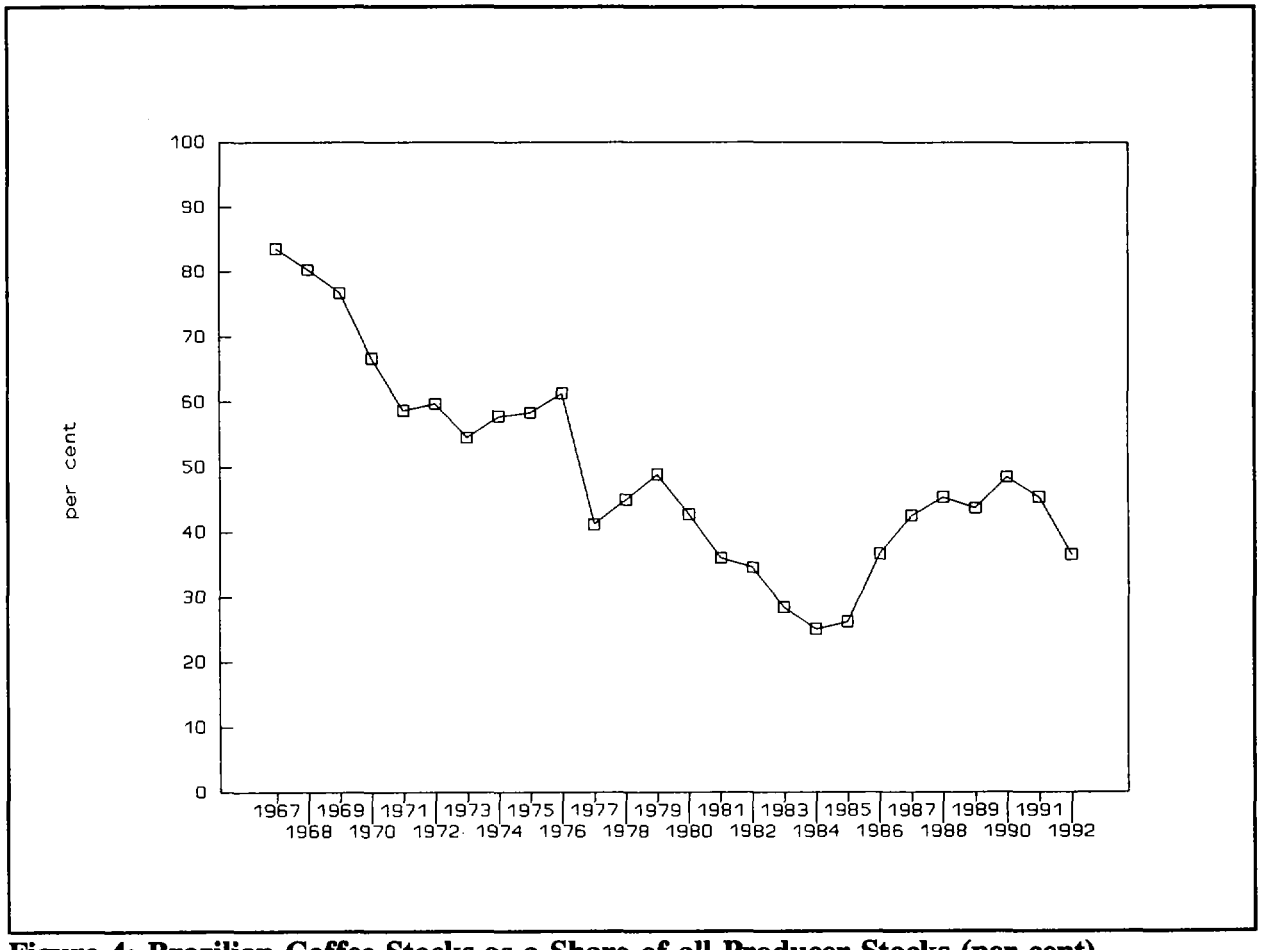

Figure 4: Brazilian Coffee Stocks as a Share of all Producer Stocks (per cent)

Source: *Supply of Coffee*, ICO.

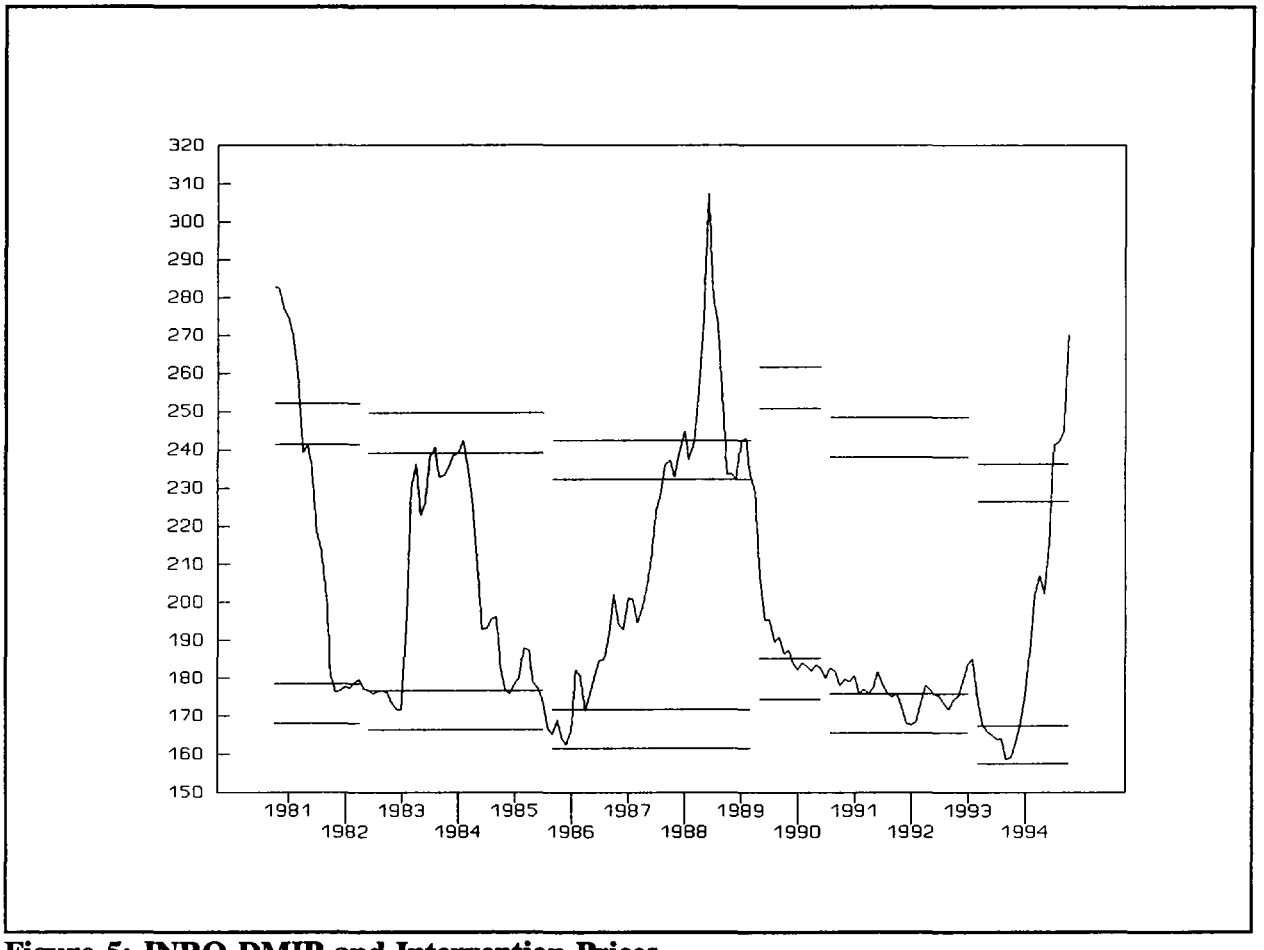

Figure 5: INRO DMIP and Intervention Prices

Source: *Rubber Statistical Bulletin*, IRSG.

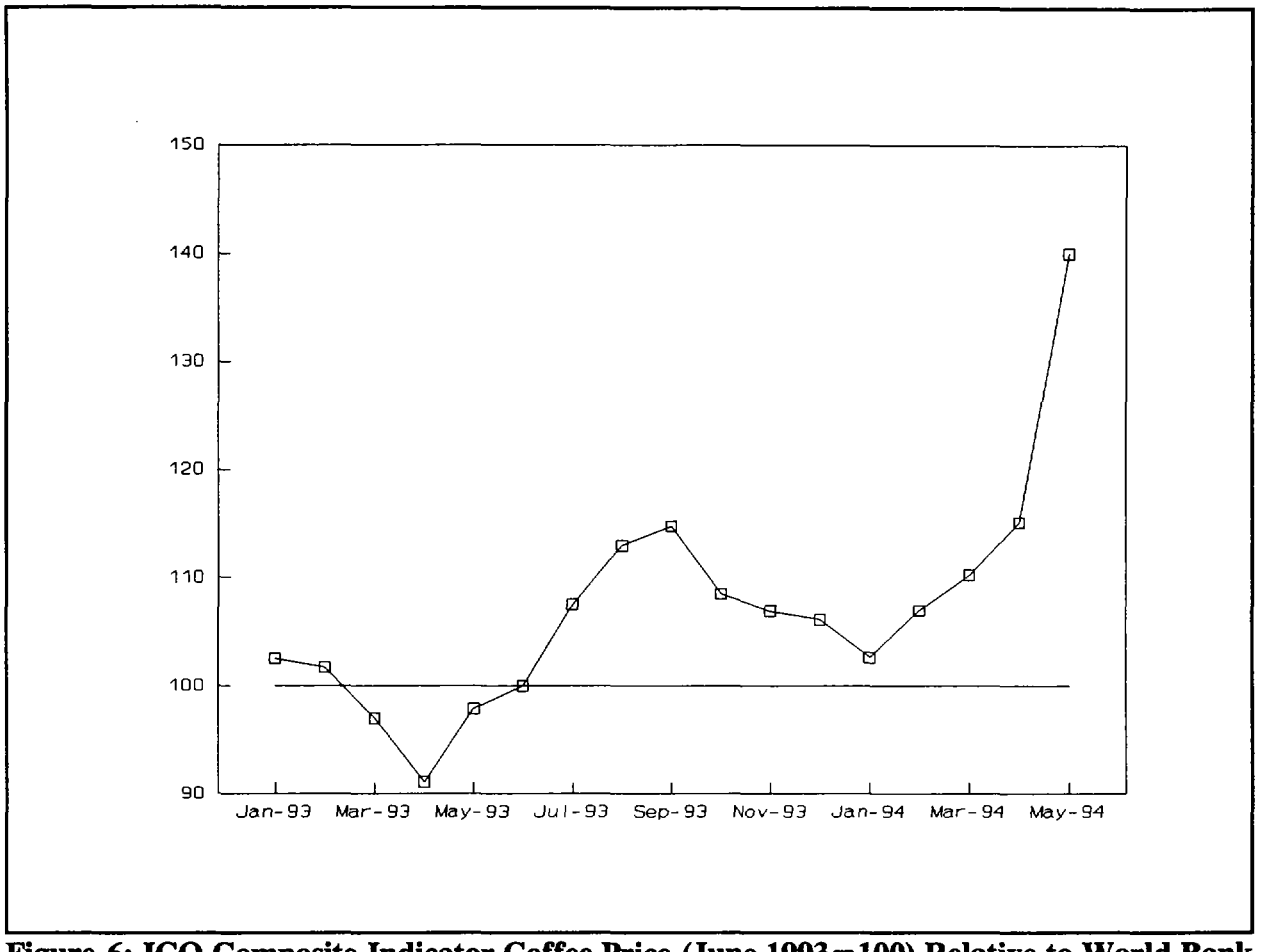

Figure 6: ICO Composite Indicator Coffee Price (June 1993=100) Relative to World Bank Agricultural Foods Price Index

Source: IECCP; *Monthly Report on Prices*, ICO

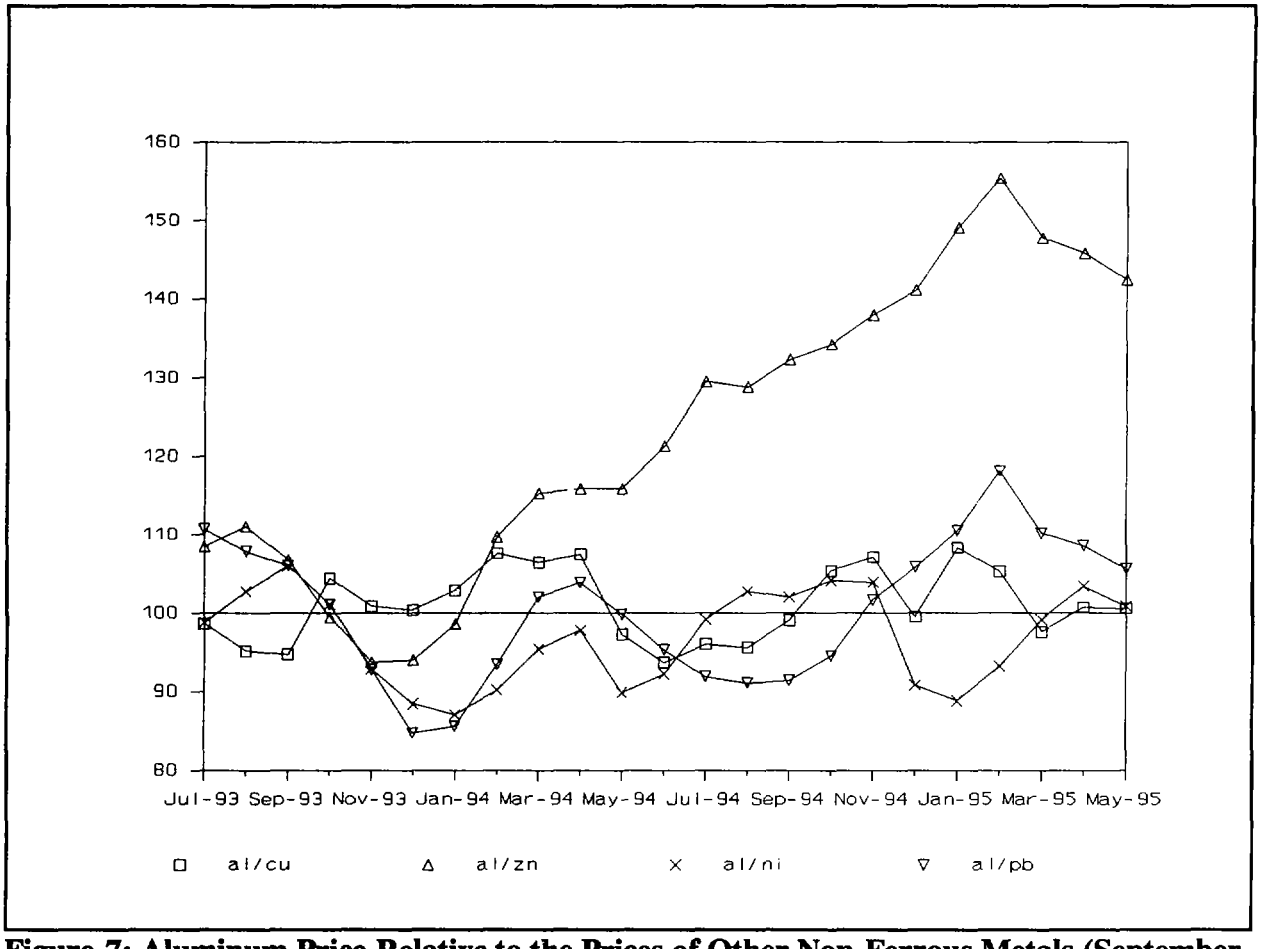

Figure 7: Aluminum Price Relative to the Prices of Other Non-Ferrous Metals (September-November 1993=100)

Source: *World Metal Statistics Yearbook*, 1995.

Appendix

List of Abbreviations

ACPC	Association of Coffee-Producing Countries
ANRPC	Association of Natural Rubber Producing Countries
ATPC	Association of Tin Producing Countries
BSM	Buffer Stock Manager
CAP	Common Agricultural Policy (EC)
CIP	1979 Composite Indicator Price (ICoA)
CRC	Coffee Retention Committee
DMIP	Daily Market Indicator Price (INRO)
EU	European Union (previously European Community)
IBC	Instituto Brasileiro do Cafe
ICA	International Commodity Agreement
ICC	International Coffee Council
ICCA	International Cocoa Agreement
ICCO	International Cocoa Organization
ICO	International Coffee Organization
ICoA	International Coffee Agreement
INRA	International Natural Rubber Agreement
IPC	Integrated Programme for Commodities (UNCTAD)
ISA	International Sugar Agreement
ISO	International Sugar Organization
ITA	International Tin Agreement
ITC	International Tin Council
LIP	Lower Intervention Price (INRO)
LME	London Metal Exchange
LTAP	Lower Trigger Action Price (INRO)
MoU	Memorandum of Understanding (aluminum)
MS ¢/kg	Malaysian-Singapore cents/kilogram (INRO)
NIEO	New International Economic Order
OPEC	Organization of Petroleum Exporting Countries
PANCAFE	Productores de Cafe S.A.
SDR	Special Drawing Right
UIP	Upper Intervention Price (INRO)
UNCTAD	United Nations Conference on Trade and Development
UTAP	Upper Trigger Action Price (INRO)

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